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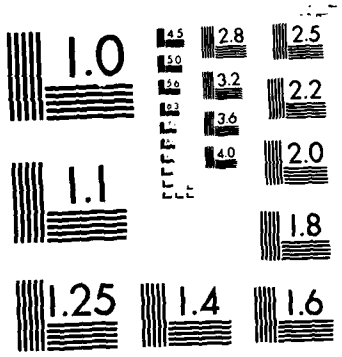

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PATIENT REFERRALS AND CONSULTATIONS INITIATED BY PACIFIC FLEET SHIPS DURING IN-PORT PERIODS

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PATIENT REFERRALS AND CONSULTATIONS INITIATED BY PACIFIC FLEET SHIPS DURING IN-PORT PERIODS

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SUMMARY

This study was designed to document the proportion of shipboard patient visits requiring consultative or referral services in-port, and to identify the nature of those services received. Approximately 11% of in-port patient visits required outside medical assistance, with independent duty corpsmen referring at a substantially higher rate (18%) than physicians (7%). While the majority of physician referrals (90%) were directed to specialty clinics, independent duty corpsman referrals were approximately evenly divided between specialty and general medical clinics. The rank-order of referral diagnoses and consultations was generally similar for physicians and independent duty corpsmen, with orthopedic problems comprising the majority of consultations.

Due to a host of organizational, environmental, and operational factors, the medical departments aboard U.S. Navy ships represent a distinct and specialized sector of the military health care system. Approximately three-fourths of these medical departments are headed by an independent duty corpsman who, unlike many nonphysician health care providers, performs with a great deal of autonomy. While the ship is at sea, the medical department functions as a remote clinic with extremely limited access to supportive technology or consultative services. While the ship is in-port, however, the medical department is afforded access to the shorebased medical establishment for consultation and referral services.

The primary mission of the Navy Medical Department is combat readiness and support of the operating forces.[1] Because shorebased consultative and referral services provide direct medical support to the operating forces, it is important to know more about the nature and the scope of the in-port referral requirements of physicians and independent duty corpsmen aboard ships. Therefore, the purpose of the present study was to (1) document the proportion of shipboard patient visits which receive consultative or referral services in-port, and (2) identify the nature of the services received.

METHOD

As part of a Navy-wide survey of medical communications and evacuations[2] at sea, Pacific Fleet ships (N=173) and submarines (N=42) were asked to provide additional information regarding medical consultations and referrals while in-port. Although data were submitted during visits to both foreign and domestic ports, security considerations precluded the collection of specific location identifiers. During the 9-month study, a total of 108 ships and 13 submarines provided monthly in-port tallies of the ship's strength, number of patient visits, number of patients referred to specialty clinics for consultations (SF 513), and the number of patients referred to general outpatient clinics (SF 600).

In these monthly reports, consultations were itemized by specialty (e.g., cardiology, orthopedics) and referrals were itemized by general diagnostic category corresponding to the major classifications on the back of the monthly Morbidity Report, NAVMED 6300/1 (e.g., Infective & Parasitic, Digestive, etc). Information regarding shipboard medical department structure was collected at both the beginning and end of the study.

RESULTS

The majority of the shipboard medical departments in this sample were headed by independent duty corpsmen (71%), and the remaining 29% were headed by physicians. The sample distribution of ship types and senior medical department representatives is characteristic of the Navy and is presented in Table 1.

TABLE 1

DISTRIBUTION OF SAMPL BY SHIP TYPE AND SENIOR MEDICAL DEPARTMENT REPRESENTATIVE

	Senior Medical Department Representative	
Ship Type	Physician (N=35)	Independent Duty Corpsman (N=86)
A/C Carrier	3	0
Combatant	3	48
Auxiliary	12	11
Amphibious	14	13
Submarine Support	3	1
Submarine	0	13

During this study, the Pacific Fleet ships in the sample reported a total of 108,758 patient visits while in-port. The majority of these visits occurred aboard ships with a physician (66%) and approximately 11% required either a consultation (7%) or a referral to a general outpatient clinic (4%).

Shipboard independent duty corpsmen utilized external medical assistance in 18% of all in-port patient visits and this assistance was approximately evenly divided between consultations and referrals to general outpatient clinics. Physicians, on the other hand, requested external medical assistance in 7% of all in-port patient visits and utilized consultations almost exclusively (90%).

As shown in Table 2, the majority of consultations were for orthopedic problems. Although the rank-order of consultations initiated by physicians and independent duty corpsmen was generally similar, corpsmen requested proportionately more dental and internal medicine consultations and physicians requested more ophthalmology consultations. The ratio of consultations to total patient visits did not differ significantly between physicians (6%) and independent duty corpsmen (9%).

TABLE 2

IN-PORT MEDICAL CONSULTATIONS INITIATED BY SHIPBOARD PHYSICIANS AND INDEPENDENT DUTY CORPSMEN

	Percent of all 513s*		
Problems Referred to Specialty Clinics (513s)	Total	Physician-referred	Corpsman-referred
Orthopedics	19.2	10.5	8.7
ENT	10.9	6.6	4.3
Dermatology	10.7	6.3	4.4
Dental	9.8	3.3	6.5
Optometry	7.5	4.9	2.6
Psychiatry	7.1	4.8	2.3
Urology	6.9	4.7	2.2
Opthalmology	6.6	5.6	1.0
Internal Medicine	6.5	2.7	3.8
General Surgery	4.9	3.3	1.6
Podiatry	2.0	1.3	.7
Neurology	1.7	1.5	.2
X-ray Service	1.5	1.1	.4
Cardiology	1.0	.7	.3
Proctology	1.0	.8	.2
PT/OT	.7	.6	.1
Gastroenterology	.6	.2	.4
Allergy	.5	.3	.2
Laboratory Service	.4	.0	.4
Plastic Surgery	.3	.2	.1
Hypertension	.1	.0	.1

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* Number of 513s = 7,720

An analysis of the ratio of general medical referrals to total patient visits, on the other hand, revealed that independent duty corpsmen referred a significantly larger proportion (t (112) = 3.97, $p<.001$) of their patients (9%) to general medical outpatient clinics than did physicians (1%). Among those ships with an independent duty corpsman as the senior medical department representative, the proportion of referrals did not differ between Chief Petty Officers and First Class Petty Officers.

Although specific information was requested regarding the probable diagnoses for general medical referrals, these data were not provided in 40% of the referral cases reported (Table 3). When diagnostic data were provided, the leading reasons for general medical referrals included respiratory, alcohol/drug, and musculoskeletal problems. The rank-order of these referral diagnoses was generally similar for physicians and independent duty corpsmen.

TABLE 3

IN-PORT GENERAL MEDICAL REFERRALS INITIATED BY SHIPBOARD PHYSICIANS AND INDEPENDENT DUTY CORPSMEN

Problems Referred to General Outpatient Clinics (600s)	Percent of all 600s*		
	Total	Physician-referred	Corpsman-referred
ER/General Clinic	40.3	7.5	32.8
Respiratory System	12.5	1.2	11.3
Alcohol/Drugs	7.6	.7	6.9
Musculoskeletal	7.1	.5	6.6
Infective/Parasitic	7.1	.2	6.9
Skin/Subcutaneous Disease	6.9	.4	6.5
Accidents/Poisonings	4.4	.1	4.3
Ill-defined Conditions	2.2	.3	1.9
Sexually Transmitted Diseases	2.9	.0	2.9
Genitourinary System	2.5	.2	2.3
Nervous System	2.0	.7	1.3
Digestive System	2.0	.2	1.8
Mental Disorders	1.5	.0	1.5
Circulatory System	.9	.0	.9

* Number of 600s = 3,984

DISCUSSION

Although consultation referrals and referrals to general medical clinics represent an important aspect of health care delivery, relatively little is known about these processes.[3] Studies conducted in the United States found that physicians refer approximately 1-6% of their patient visits, on the average, with large variation in referral rates among individual physicians.[4,5]

In the present study, Navy physicians aboard ship referred slightly less than 1% of their in-port patients. Independent duty corpsmen, on the other hand, referred 9% of their in-port patients. This difference between the in-port referral rates of physicians and independent duty corpsmen may be due, in part, to the perceived level of autonomy. Brady,[6] for example, has reported that among nonphysician practitioners in remote settings, autonomy is negatively associated with patient referral decisions.

Within the civilian community, referral decisions appear to be related primarily to patient factors such as quality of patient management and patient expectations for referral, and to a somewhat lesser extent by physician factors such as attitudes of physicians' colleagues/local medical community towards referring.[4] Within the military community, the factors associated with patient referral decisions have not been documented systematically.

Overall, about two-thirds of all requests for medical assistance involved specialty clinics. The specialty clinics most frequently consulted included orthopedics, ENT, dermatology, and dental. These specialty consultations correspond quite closely with the types of medical problems most frequently observed in shipboard settings.[7] Although the rank-order of consultations was quite similar for physicians and independent duty corpsmen, the proportion of dental consultations was somewhat higher among corpsmen. This difference was probably due to the fact that about three-fourths of the ships with a physician aboard also had a dentist aboard. The ships with independent duty corpsmen, on the other hand, did not have a dental capability aboard.

During the course of the study, approximately 7% of all in-port patient visits required a referral to a specialty clinic. It is important to remember, however, that these figures represent an average of the data collected during visits to both foreign and domestic ports. Because shorebased medical services are not available in many foreign ports, one would expect both the consultation and referral rates in homeports, where services are available, to be higher than the world-wide average.

Although this study represents an initial description of the nature and scope of in-port referrals and consultations, it is intended primarily to stimulate discussion and research. At the present time very little is known about the entire medical referral process in terms of how it operates; the relationship between referring health care providers, patients, and consultants; the decision-making process of each of the key participants; the environmental context which influences the operation of the process; and the critical factors which determine the effectiveness of the outcomes.[4] These processes appear relevant to both productivity and quality of care issues and, therefore, warrant increased attention.

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